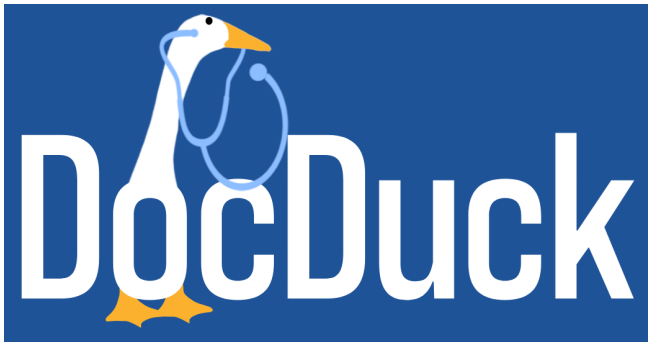

DocDuck Financial Business Plan

SWEng Group 1

January 24, 2024

Contents

Financial Business Plan Version	**Release Date**	**Changes**	**Contributors**
0.1	8/12/23	Initial Version. Created Sections: 1 "The Product", 2 "Operational Costs" (including 2.1-2.7) and 3 "Contracts" (including 3.1.1-3.1.4). General formatting and grammar. Formatting standardised with QA and FS.	wab513 jrb617 htsm500 lw2380 wab513
0.2	15/1/24	Created and filled out section 1 (1.1, 1.2). Added pie chart in section 2. Corrected budget and costs.	htsm500
1.0	23/1/24	Created New Section 2 "Our Company", expanded 1.1, 1.2, added 1.3. General formatting.	jrb617 htsm500

1 Our Product

1.1 Summary

Our product, named "DocDuck" is designed to improve the efficiency of engineering maintenance through the effective logging of faults and repairs. Our main focus for the company, also called DocDuck, is to improve overall clarity for the maintenance engineering sector. Our company's emphasis is on affordability for the growing business as well as continued support with additional future features.

1.2 The Aim

DocDuck's aim is to create a product that is able to provide businesses with an application that can increase the efficiency of a maintenance engineering team. This is achieved by providing an easy and efficient way for engineers to access, edit, track and create documentation, as well as provide clear and easy communication between admins, operators and engineers. The project is expected to run over the course of 37 weeks (from the w/c 25th September 2023 - w/c 3rd June 2024).

1.3 The Product

Our product is designed to increase the efficiency of engineering maintenance. In the event of a machine fault, an Operator can log that the machine is inactive and describe what kind of fault has occurred. An Engineer would then receive this report and would then take action to fix this fault. they could then log the machine as active again. they would also log the technical details of the fault as well as the repair that had been done. An Admin would be able to create accounts and monitor these reports. Later releases are intended to add additional functionality. The Engineer will be able to access a machine part directory and decrease/increase the number when removing/adding parts for repairs. The Admin will be able to access analytics to see which machines/parts are breaking more than most. The Operator/Engineer will be able to book machines at certain times for use/maintainence.

2 Our Company

Our company, DocDuck, was founded around the core principles of quality, efficiency and accountability. We are a group of experienced developers with backgrounds in varying fields coming together a high quality product with practical features, at an affordable price point, accessible to all skill levels.
The organisational structure of the company is critical to mitigate project risks, to avoid time overruns, quality deterioration and their associated financial consequences.

2.1 Organisation

The organisational structure of our company is designed to facilitate fast, effective communication, distribution of responsibilities and tasks, and quality documentation. The specific roles within the company, as well as those who fill them and the connection between them is shown in the figure below:

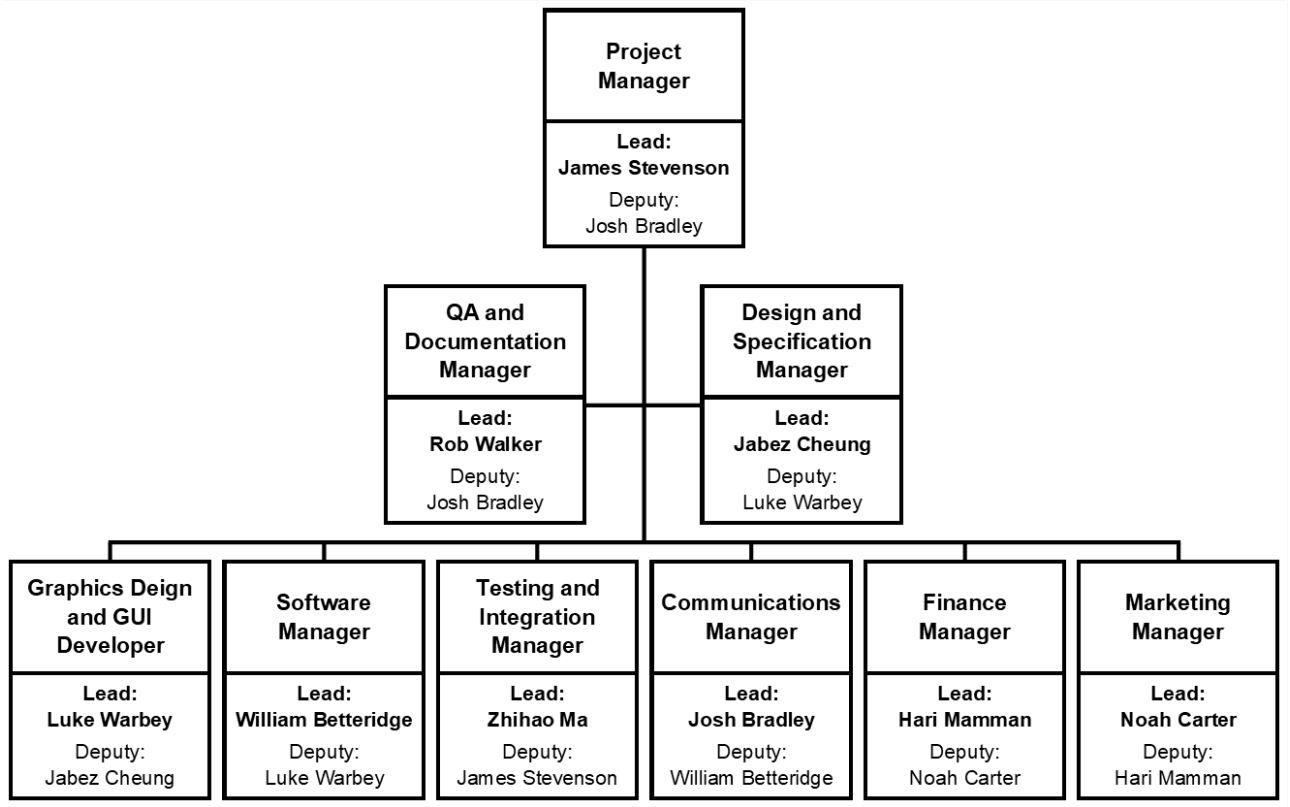

Figure 1: Member Roles

The Lead for each role handles the main responsibilities associated with that position. The Deputy for each role takes over in the event that the Lead is unavailable as well as handling smaller tasks to better distribute workloads. The Lead and Deputy are not exclusively required to work exclusively in their area just to oversee it. For example, all team members will work as part of the coding team, overseen by the Software Manager. All roles have been assigned based on ability and personal preferences. Using a Deputy for each role provides redundancy an ensures that company efficiency will not be effected by individuals being unavailable.

2.2 Communications

2.2.1 In Person Meetings

In order to maximise effectiveness our company utilises weekly, in person meetings. This provides the most efficient method to monitor progress, set tasks and deadlines and develop ideas. In the event of forthcoming deadlines or the need for more frequent discussion, multiple meetings will be held in a week. An agenda for the meeting will be set by the Project Manager or Deputy to maximise effective use of the time and prevent discussions from becoming sidetracked. Minutes are taken by a QA and Documentation Manager and stored in the group repository. These clearly show what has been discussed in the meeting and which action items are

required, along with who is expected to carry them out and by when. These will also be relayed in the group communication channel by a Communications Manager.

2.2.2 Virtual Meetings

In the event that an in person meeting is not possible, the company will switch to virtual meetings. DocDuck has standardised around the Google ecosystem so meetings are hosted through Google Meet. These function identically to in person meetings in terms of agenda and minutes. If only a select few are unavailable in person, a hybrid format is used wherein only they attend the meeting virtually while everyone else meets in person.

2.2.3 Group Repository

To be able to collaborate effectively, all company members must be able to access the required documentation. The service used needs to be cloud based, reputable and at a minimal cost. DocDuck has standardised around using Google Drive for this role. Each section, Meeting minutes, weekly reports, etc. can be stored in specific folders and sub-folders to enable efficient organisation. Google's integrated document editing tools allows for editing directly from the cloud. Being cloud based enables documents to be accessed from any device preventing time and therefore financial losses due to files being lost or stored on an individual, unavailable device. GitHub is used for code storage as it provides better support for version history and Git repositories.

2.2.4 Group communication channel

With the company's standardisation the natural choice for a group communication channel was through Gmail's group feature. This allows for integration with the group repository while being simple to use and widely accessible. This provides a useful channel for asynchronous communication to reach group members at all times of day.

2.2.5 Client and external company communication

DocDuck utilises email for communications between clients and contracted companies. Email has become standard due to its widespread use and ease of use. Client communications are handled by the Project Manager whereas contractor communications are handled by the Communications Manager.

3 Financial Plan

3.1 Hours

The hours recorded on the time-sheet have been used to form a prediction of hours for the weeks to come. Below in figure 1 is the expected hours breakdown per team member. It has been calculated under the assumption that most team members will be contributing a similar amount of work for the product, including implementation and documentation, however those that have specific coding leads are projected to have more hours than the others. During semester 1, numerous documents have been required to be produced, with semester 2 being left to develop our product. Our development team has had less to do during this first semester but will be carrying out a larger amount of the tasks during semester 2, whereas our documentation team has had much to do, but the tasks will decrease during semester 2 and as such it evens out, but with more given to the development team still.

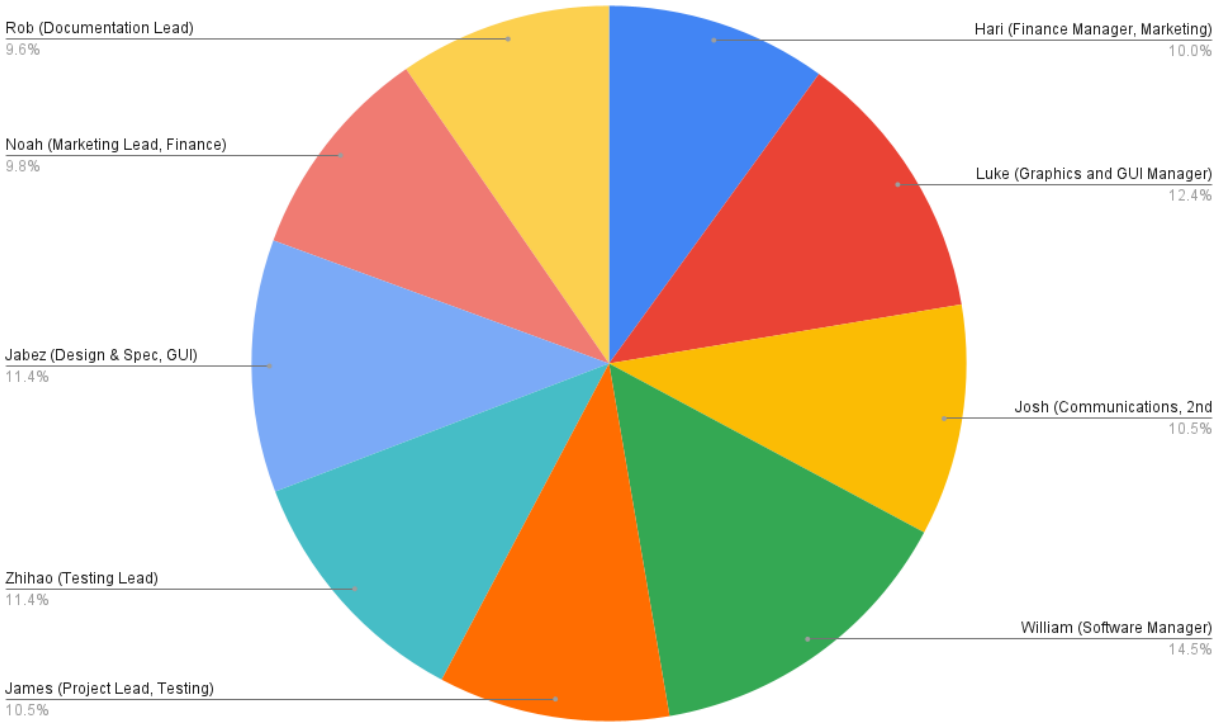

Figure 2: Member Hours

3.2 Overhead Costs

3.2.1 Labour

In order to create this product, our company needs to secure financial backing to cover the costs of several areas, the first and foremost of these being labour costs. Throughout the first semester, hours have fluctuated, as seen in table 1. This is due to numerous reasons, including vacation weeks and working to meet deadlines. From the w/c 6th November to the w/c 4th December, the team has on average put in 36 hours a week total, in order to successfully meet numerous deadlines, which has cost roughly £720.00, at £20.00 per person per hour. This provides a good basis in regards to estimated hours. Over the vacation period it is expected that not much work will take place, except for the potential for a weekly meeting, and so for the 3 weeks, 10 hours of work is budgeted which is £200.00 per week. For the remainder of Semester 1 and all of Semester 2, 50 hours a week on average should be considered a good estimate - it accounts for 2 standard deviations above the average, given the worked periods stated above, which should provide enough time during the week to accomplish all tasks. Thus, for all weeks that are not timetabled as vacation, it is budgeted at 50 hours of work per week, which is £1,000.00 a week.

3.2.2 Rent

The 2nd cost that needs addressing is the rent; our team has been allocated a 1,400sq foot office space, which costs £23.50 per sq foot per annum. We need it for 37 weeks, which is 259 days, so (£23.50/365)x259x1400 is the cost of the office for the full 37 weeks. This totals £23,345.48 for the year. This is one of the overhead charges that is paid every 4 weeks so every 4 weeks we pay £2,334.55.

3.2.3 External Licences

The 3rd cost is for the appropriate licences for all applications, tools, media, libraries and APIs:

1. **IDEs & Java JDKs:**
    - InteliJ IDEA Ultimate: £479.00 per person for a perpetual fallback license first year. However a start up company scheme which is applicable for our company reduces it price by 50% for the first 5 years total price: £239.50 (only 1 user needed for scene-builder and UI design preference). [1]
    - Eclipse: Open source for commercial use therefore free to use. [2]
    - Java JDK 11 with JavaFX: Using Open-source versions of APIs which can be used commercially therefore free to use. [3]
2. **UX & Graphic Design Licences:**
    - Photopea (free alternative to Adobe Photoshop): Advert based and commercially viable [4]
    - Figma (UX Design and CCS converter): Billed £11 per editor/month which amounts to £132 Annually for 1 user. [5]
    - Font Licences: Google Fonts are free for commercial use. [6]
    - Graphic Licences: photography of Duck: £20 full use [7]
3. **External Libraries:**
    - VLCJ: Within a contract TBC however is free for commercial use due to the library being open source.

3.2.4 Additional Overheads

The 4th cost is for the use of utilities. They cost £150.00 per week, and are made up of £100.00 per week for IT, and £50.00 per week for utilities (ie. water, gas, waste disposal etc). This totals £6,000.00 and is also to be paid every 4 weeks.

3.2.5 Technology and Hardware

To meet the requirements for our product, extra hardware will be required for the back-end of the application to hold the databases and information. The main cost amongst this will be servers for communicating with the software to store all data and media files.
Initially we will use a 3rd party VPS provider whilst we are establishing ourselves, however in the future we plan to upgrade to high quality dedicated servers we run ourselves to give us more flexibility and control over the setup.
The cost of a 3rd party VPS with Oracle Cloud Infrastructure (OCI) would be paid per CPU core and GB of memory per hour used. The table below shows the costs per hour for a virtual machine with an ARM A1 processor:

Hardware	**Cost Per Hour**	**Total cost (37 weeks)**
2 x OCPU @ 3.0GHz	£0.015974	£99.29
2 x 1 GB RAM (2GB RAM)	£0.002396	£14.89
–	**Full Total:**	**£114.18**

Table 1: Arm A1 virtual machine costs per client [8]

3.3 Cost Expenditure Table

All of the costs for the company are laid out in the table below, which dictates weekly expenditure:

Week:	Labour Hours:	Labour Costs:	Utilities:	Rent:	Licences & Contracts:
W/C 25th Sep	11.25	£225.00	£600	£2,334.55	£3.09
W/C 2nd Oct	9	£180.00	£0	£0.00	£3.09
W/C 9th Oct	9	£180.00	£0	£0.00	£3.09
W/C 16th Oct	13.5	£270.00	£0	£0.00	£3.09
W/C 23rd Oct	14	£270.00	£600	£2,334.55	£23.09
W/C 30rd Oct	15	£300.00	£0	£0.00	£3.09
W/C 6th Nov	42	£830.00	£0	£0.00	£3.09
W/C 13th Nov	38	£760.00	£0	£0.00	£135.09
W/C 20th Nov	23	£460.00	£600	£2,334.55	£242.59
W/C 27th Nov	42	£830.00	£0	£0.00	£3.09
W/C 4th Dec	36	£720.00	£0	£0.00	£3.09
W/C 11th Dec	36	£400.00	£0	£0.00	£3.09
W/C 18th Dec	10	£200.00	£600	£2,334.55	£2003.09*
W/C 25th Dec	10	£200.00	£0	£0.00	£3.09
W/C 1st Jan	10	£200.00	£0	£0.00	£3.09
W/C 8th Jan	50	£1000.00	£0	£0.00	£3.09
W/C 15th Jan	50	£1000.00	£600	£2,334.55	£3.09
W/C 22nd Jan	50	£1000.00	£0	£0.00	£3.09
W/C 29th Jan	50	£1000.00	£0	£0.00	£3.09
W/C 5th Feb	50	£1000.00	£0	£0.00	£3.09
W/C 12th Feb	50	£1000.00	£600	£2,334.55	£3.09
W/C 19th Feb	50	£1000.00	£0	£0.00	£3.09
W/C 26th Feb	50	£1000.00	£0	£0.00	£3.09
W/C 4th Mar	50	£1000.00	£0	£0.00	£3.09
W/C 11th Mar	50	£1000.00	£600	£2,334.55	£3.09
W/C 18th Mar	50	£1000.00	£0	£0.00	£3.09
W/C 25th Mar	10	£200.00	£0	£0.00	£3.09
W/C 1st Apr	10	£200.00	£0	£0.00	£3.09
W/C 8th Apr	50	£1000.00	£600	£2,334.55	£3.09
W/C 15th Apr	50	£1000.00	£0	£0.00	£3.09
W/C 22nd Apr	50	£1000.00	£0	£0.00	£3.09
W/C 29th Apr	50	£1000.00	£0	£0.00	£3.09
W/C 6th May	50	£1000.00	£600	£2,334.55	£3.09
W/C 13th May	50	£1000.00	£0	£0.00	£3.09
W/C 20th May	50	£1000.00	£0	£0.00	£3.09
W/C 27th May	50	£1000.00	£0	£0.00	£3.09
W/C 3rd June	50	£1000.00	£600	£2,334.55	£3.09
TOTALS:	1338.75	£26,775.00	£6,000.00	£23,345.50	£2505.68
–	–	–	–	**Full Total:**	**£58,626.18**

Table 2: Company Cost Table

*Contracts have been negotiated but are yet to be signed for the £2000 deal and in turn will be net-neutral as shown in Section 3: Contracts.

3.4 Loan

As is seen in the table, the overall total required to meet these costs is £58,626.18, which is what our company requires to break-even. The loans we require from the Financial Backer would be for the sum of £60,000.00, in order to make sure we have assets to account for under-budgeting. ***2 loans at £30,000.00 each*** to be given at the start of each semester would cover everything.

3.5 Interest

The interest needing to be paid is 16.86% of £60,000.00, which is £10,116.00, making the total amount needed to pay off the loan and interest £71,116.00.

4 Contracts

4.1 Contracts with BookCook Limited

Figure 3: Bookcook logo: courtesy of BookCook Limited

4.1.1 BookCook Contribution: Video

A contract has been agreed for DocDuck to purchase a video media handler from BookCook for a value of £1,000.00 total. It has also been agreed that BookCook will provide maintenance of the handler in the case of discovered errors.
This is to fill the full specification requirements, being able to change: source file and position on screen

4.1.2 BookCook Contribution: Audio

A contract has been agreed for DocDuck to purchase an audio media handler from BookCook for a value of £1,000.00 total. It has also been agreed that BookCook will provide maintenance of the handler in the case of discovered errors.
This is to fill the full specification requirements, being able to change the source file

4.1.3 DocDuck Contribution: Graphics

A contract has been agreed for DocDuck to sell a graphics handler to BookCook for a value of £1,000.00 total. It has also been agreed that we will will provide maintenance of the handler in the case of discovered errors.
This is to fill the full specification requirements, being able to add or change: circles, lines, solids, colour, shading, position on screen, size, duration

4.1.4 DocDuck Contribution: Text

A contract has been agreed for DocDuck to sell a text handler to BookCook for a value of £1,000.00 total. It has also been agreed that we will will provide maintenance of the handler in the case of discovered errors.
This is to fill the full specification requirements, being able to change: source file, size, colour, font, position on screen, duration.

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